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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/577,545	09/11/2006	Ib Helmer Nielsen	PATRADE	2263
7590 James C. Wray 1493 Chain Bridge Road Suite 300 McLean, VA 22101		EXAMINER LEUNG, KA CHUN A		
		ART UNIT 3741		
		MAIL DATE 03/20/2009		
		DELIVERY MODE PAPER		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/577,545

**Applicant(s)**

NIELSEN, IB HELMER

**Examiner**

Ka Chun Leung

**Art Unit**

3741

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 26 January 2009.  
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1, 3-5 and 11 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 1, 3-5 and 11 is/are rejected.  
7) ☒ Claim(s) 1 is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.  
10) ☒ The drawing(s) filed on 26 April 2006 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:  
1. ☒ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☐ Information Disclosure Statement(s) (PTO/S508)  
Paper No(s)/Mail Date \_\_\_\_\_

- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_  
5) ☐ Notice of Informal Patent Application  
6) ☐ Other: \_\_\_\_\_

### **DETAILED ACTION**

1. This Office Action is in response to Applicant's amendment filed on 01/26/2009.

#### ***Drawings***

2. As cited in the previous Office Action, the drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the sensors displaced in the circumferential direction of the main, as recited in Claim 3, must be shown or the feature(s) canceled from the claim(s).

Presently the sensors (74, 76, 80) in Figure 4 are shown to arranged parallel to the main shaft (44) as opposed to circumferentially around the main shaft (44). No new matter should be entered. See also response to Applicant's remarks in Paragraph 28 below.

3. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an

application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Claim Objections***

4. Claim 1 is objected to because of the following informalities: in Lines 6-7, the claim recites the limitation "the piston sensor means" which lacks antecedent basis. Based on prosecution history, it appears that the "the piston" and "sensor means" were meant to be separated, however it is presently not presented as such. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 1, 5 and 11 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

7. Base Claim 1 recites the limitation "the main shaft" in Line 5. There is insufficient antecedent basis for this limitation in the claim. The claim is rendered indefinite since there is insufficient antecedent basis for "the main shaft" and further it is unclear, as

claimed, whether "the main shaft" is in reference to the introduced "rotating control shaft" or if they are separate and independent shafts.

8. Claims 3 and 4 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 3 and 4 are rendered indefinite and incomplete since both claims are dependent upon canceled Claim 2.

9. Claim 4 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

10. Regarding claim 4, the phrase "preferably" renders the claim indefinite because it is unclear whether the limitation(s) following the phrase (i.e. whether the reference means including teeth must be disposed on the flywheel of the main shaft) are part of the claimed invention. See MPEP § 2173.05(d).

### ***Claim Rejections - 35 USC § 103***

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Irie et al and Winkle

13. Claims 1, 5 and 11, as best interpreted, are rejected under 35 U.S.C. 103(a) as being unpatentable over Irie (DE 3 909 772A) in view of Winkle (U.S. Patent 5,698,031).

14. Irie et al discloses a lubrication device (21) for providing lubricating oil to the cylinders of a combustion engine comprising a plunger (22), a cam (23), an oil inlet (24), an intake valve (25), an exhaust valve (26), a discharge opening (27), a rocker arm (28), and an eccentric shaft (29). Further Irie et al discloses in Figure 1 a marine engine (1) with a drive shaft (3) that rotates synchronously at the speed of the engine, a phase setting device (5), a drive shaft speed detector (7), a crank angle detector (8), an engine speed detector (9), a cylinder oil temperature sensor (11) and a control device (100). The control device (100) includes a number of A/D converters (101, 102, 110, 113, 114) and a number of D/A converter s (109, 111), and an operating unit (103) that determines whether the engine is running or stopped. Additionally Irie et al discloses Column 5, Paragraph 4 (or Page 8, last paragraph of the translation) that "the crank angle detector 8 can be replaced by the combination of a crankshaft speed detector and a reference detector". Moreover, an external system (200) is provided which includes

an outboard motor (201), remote control unit (202) and a push button (203). However, Irie et al does not distinctly disclose the type of motor used to operate the lubricating device.

15. Winkle discloses an oiling device for distributing fluid, such as oil, onto a work piece and notes in Column 3, Paragraph 2, that the "main shaft can be driven by either a variable speed AC or DC motor".

16. Because both Irie et al and Winkle both disclose providing motors for driving shafts in oiling/lubricating systems, it would have been obvious to one of ordinary skill in the art to substitute one type of motor for another for the predictable result of rotating a shaft to actuate oil/lubricant pumps.

17. Specifically regarding Claim 5, the D/A converter (111) connected to the phase setting device (5) can be considered as a resolver.

18. Specifically regarding Claim 11, Irie et al discloses in Column 3, Lines 49-53 that the "drive shaft 3 rotates synchronously at the speed of the engine".

Irie et al, Winkle and Onuma et al

19. Claim 3, as best interpreted, is rejected under 35 U.S.C. 103(a) as being unpatentable over Irie et al and Winkle and et al as applied to Claims 1, 5 and 11 above, and further in view of Onuma et al (U.S. Patent 6,058,766).

20. Irie et al discloses a marine engine (1) with a drive shaft (3) that rotates synchronously at the speed of the engine, a phase setting device (5), a drive shaft speed detector (7), a crank angle detector (8), an engine speed detector (9). Irie et al

further discloses that the crank angle detector (8) can be replaced by the combination of a crankshaft speed detector and a reference detector as cited in Column 5, Paragraph 4 (or see Page 8, last paragraph of the translation). Winkle discloses an oiling device for distributing fluid, such as oil, onto a work piece and notes in Column 3, Paragraph 2, that the "main shaft can be driven by either a variable speed AC or DC motor".

However, the references do not distinctly disclose the location of the reference sensors.

21. It is well known in the art to provide some type of "reference means" attached to the crankshaft in order for a crank angle sensor to detect the position of the engine.

Onuma et al discloses a disk shaped rotary body (1) mounted to the crankshaft and provides electromagnetic pickups (3a and 3b) to generate a pulse the convex portions (2) passes by. By generating two signals, the crank angle detector is capable of accurately identifying a reference position time for a rotating angle of a crankshaft.

Thus it would have been obvious to one of ordinary skilled in the art to have provided the system of Irie et al with reference means attached to the crankshaft for the predictable result of detecting the position of the engine.

22. Specifically regarding Claim 3, the two electromagnetic pickups (3a, 3b) of Onuma et al are mutually displaced from one another along the circumference of the rotary disk.

Irie et al, Winkle, Onuma et al, and Katogi et al

23. Claim 4, as best interpreted, is rejected under 35 U.S.C. 103(a) as being unpatentable over Irie et al, Winkle and Onuma et al as applied to Claims 1, 5 and 11 above, and further in view of Katogi et al (U.S. Patent 5,945,828)

24. Irie et al discloses a marine engine (1) with a drive shaft (3) that rotates synchronously at the speed of the engine, a phase setting device (5), a drive shaft speed detector (7), a crank angle detector (8), an engine speed detector (9). Winkle discloses an oiling device for distributing fluid, such as oil, onto a work piece and notes in Column 3, Paragraph 2, that the "main shaft can be driven by either a variable speed AC or DC motor". Onuma et al, for example, discloses a disk shaped rotary body (1) mounted to the crankshaft and provides electromagnetic pickups (3a and 3b) to generate a pulse the convex portions (2) passes by. However, the above references do not disclose the use of an index reference means.

25. Katogi et al discloses an engine combustion condition detecting apparatus comprising a crank angle sensor (103) connected to an engine control unit (120). Katogi et al further discloses providing a reference sensor (105) for indicating a specific crank angle and additionally providing a malfunction judging unit (207) to detect the occurrence of misfire by determining whether the signal outputted by the reference sensor (105) is constant.

26. Thus it would have been obvious to a person having ordinary skill in the art at the time the invention was made to have provided the marine engine and lubricating device of Irie et al and Onuma et al with a malfunction judging unit and reference sensor, in

light of the teachings of Katogi et al, in order to provide a means for detecting engine misfire.

27. Specifically regarding Claim 4, the reference sensor (105) can be considered as an "index reference means".

***Response to Remarks/Arguments***

28. Applicant's arguments filed 01/26/2009 with regards to the drawing objections have been fully considered but they are not persuasive. While the Applicant is correct that the specification provides support for the "two reference sensors that are mutually displaced in the circumferential direction of the main shaft", sensors 74, 76 cannot be considered as being "displaced from each other in the circumferential direction of the main shaft". Firstly, the circumference of the main shaft 44 does not extend to the location of sensors 74, 76. Note that the circumference or the outer edge of the main shaft 44 ends well within the tooth rim 70, while sensors 74, 76 lie beyond the boundaries of the tooth rim 70. Secondly, even if an arbitrary circumference were to be drawn from the central axis of the main shaft 44 to include one of the sensors 74 or 76, the two sensors are on completely separate planes and thus their circumferential location with respect to one another cannot be compared.

29. Applicant's arguments with respect to claims 1, 3-5 and 11 have been considered but are moot in view of the new ground(s) of rejection.

30. Specifically regarding Applicant's remarks on Page 5, Paragraph 4, the Applicant notes that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., that the present invention allows synchronized cylinder lubrication as well as non-synchronized cylinder lubrication) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

31. Specifically regarding Applicant's remarks on Page 6, second paragraph, the Applicant notes that the previous Office Action makes reference to column 3, line 62 at the bottom of Page 4 and that it stated "the citation has reference means arranged on the crank shaft as well as the shaft on the lubricating apparatus or directly or indirectly detecting mutual positions of the two shafts". These remarks appear to be misplaced. The contents of page 4 in the previous Office Action were directed only towards 35 USC § 112, second paragraph rejections and does not make any references to Irie et al. Furthermore, column 3, line 62 does not appear to be cited anywhere in the previous Office Action.

### ***Conclusion***

32. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

33. A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

34. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ka Chun Leung whose telephone number is (571)272-9963. The examiner can normally be reached on 7:30AM - 4:30PM.

35. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Cuff can be reached on (571) 272-6778. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

36. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

Art Unit: 3741

USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Ka Chun Leung/  
Examiner, Art Unit 3741

/Michael Cuff/  
Supervisory Patent Examiner, Art Unit 3741